***MATH 108 - SECTION*:**
PRE-CALCULUS

Catalog Description: **MATH 108. Pre-Calculus.** 3-3-0. Prerequisite: C or better in MATH 100 or MATH 101 or advanced placement. Inequalities, functions, theory of equations, exponential and logarithmic functions; trigonometric functions, analytic geometry.

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Required Text and Other Materials: *Algebra & Trigonometry*, 8th edition, by Sullivan, a notebook or binder, and a graphing calculator (TI 83/84 recommended). **Calculators with built-in computer algebra systems are prohibited.** *Prohibited* calculators in this category include*:*

- Texas Instruments having model numbers that begin with **TI-89** or **TI-92** and the **TI-Nspire CAS—**Note: The TI-Nspire (non-CAS) is permitted.
- Hewlett-Packard: **HP 48GII** and all model numbers that begin with **HP 40G**, **HP 49G**, or **HP 50G**
- Casio: **Algebra fx 2.0**, **ClassPad 300**, and all model numbers that begin with **CFX-9970G**

You are responsible for knowing if your calculator is permitted. Check with your instructor if you are not sure if your calculator is prohibited or allowed.

Student Outcome Objectives:
A. The student will demonstrate a profound knowledge of fundamental concepts of algebra.
B. The student will demonstrate an understanding of the basic functions of algebra and their graphs.
C. The student will demonstrate an understanding of polynomial and rational functions and their graphs.
D. The student will demonstrate an understanding of exponential and logarithmic functions and their graphs.
E. The student will demonstrate an understanding of the trigonometric functions and their graphs.
F. The student will demonstrate an understanding of analytic trigonometry.
G. The student will demonstrate the ability to readily solve equations, inequalities, and applications involving the aforementioned types of functions.

Course Content: ***Course sections and suggested homework:***

Chapter 3 - Functions and Their Graphs

3.1 - Functions
Pg. 220: #39-59 odd, 73-79 odd
3.2 - The Graph of a Function
Pg. 227: #9, 10, 11-27 odd
3.3 - Properties of Functions
Pg. 238: #11-43 odd, 73, 75, 79
3.4 - Library of Functions; Piecewise-defined Functions
Pg. 249: #9-16 all, 17-33 odd

Chapter 5 - Polynomial and Rational Functions

5.1 - Polynomial Functions and Models
Pg. 340: #11-21 odd, 37-55 odd
5.2 - Properties of Rational Functions
Pg. 352: #11-27 odd, 41-51 odd
5.4 - Polynomial and Rational Inequalities
Pg. 373: #3-27 odd

Chapter 6 - Exponential and Logarithmic Functions

6.1 - Composite Functions
Pg. 407: #7-43 odd
6.2 - One-to-One Functions; Inverse Functions
Pg. 419: #9-21 odd, 31, 35, 41, 45, 49, 51, 57, 63, 65
6.3 - Exponential Functions
Pg. 433: #29-79
6.4 - Logarithmic Functions
Pg. 446: #9-57 odd, 87-111 odd
6.5 - Properties of Logarithms
Pg. 457: #7-29 odd, 31-63 eoo, 65-71 odd
6.6 - Logarithmic and Exponential Functions
Pg. 463: #5-43 odd

Chapter 7 - Trigonometric Functions

7.1 - Angles and Their Measure
Pg. 513: #35-89 odd
7.2 - Right Triangle Trigonometry
Pg. 526: #11-57 odd
7.3 - Computing the Values of Trigonometric Functions of Acute Angles
Pg. 536: #7-45 odd, 55-63 odd
7.4 - Trigonometric Functions of General Angles
Pg. 548: #11-97 odd
7.5 - Unit Circle Approach; Properties of the Trigonometric Functions
Pg. 558: #9-77 odd
7.6 - Graphs of the Sine and Cosine Functions
Pg. 570: #9-28 all, 39-42 all, 43-57 odd
7.7 - Graphs of the Tangent, Cotangent, Cosecant, and Secant Functions
Pg. 580: #7-16 all, 17-31 odd

Chapter 8 - Analytic Trigonometry

8.1 - The Inverse Sine, Cosine, and Tangent Functions
Pg. 612: #13-35 odd
8.7 - Trigonometric Equations (I)
Pg. 653: #7-29 odd, 41-51 odd

Chapter 9 - Applications of Trigonometric Functions

9.1 - Applications Involving Right Triangles
Pg. 673: #9-21 odd, 23, 25, 27, 28, 32, 33, 35

Course Requirements: Students must attend class regularly and punctually. Students should come to class with the textbook, calculator, and notebook or binder. Students should maintain daily access to Blackboard and their Nicholls State email account. Students should complete assigned homework and quizzes ***on time*** so that learning and test scores may be enhanced. Students are expected to take tests when they are scheduled. ***Test dates will be announced in class and posted in Blackboard.*** It is the student's responsibility to be aware of these announcements or postings. Exceptions are made for university related functions provided appropriate documentation is presented and arrangements are made ***prior*** to the scheduled exam.